

NOTIFICATION OF PROPOSED RESEARCH CRUISE

Part A: GENERAL

1. Name of research ship: **RV Pelagia** Cruise number: **64PE360**

2. Cruise dates: 01/10/2012 - 25/10/2012

3a. Operating authority: NIOZ Royal Netherlands Institute for Sea Research
Telephone: (+31) (0)222-369300
Telefax: (+31) (0)222-319674

3b. Operating agent: NIOZ Royal Netherlands Institute for Sea Research
Telephone: (+31) (0)222-369300
Telefax: (+31) (0)222-319674

4. Owner: NIOZ Royal Netherlands Institute for Sea Research

5. Particulars of ship:

name: Pelagia
nationality: Dutch
overall length: 66.00 meters
maximum draught: 4.00 meters
nett tonnage: 1553 NRT
propulsion: 2 diesel electric Elliot White Gill
Bow Truster
call sign: PGRQ

6. Crew: name of master: J.C. Ellen/P. Kuit
number of crew: 11

7. Chief scientist: name: F. Mienis
addresses: NIOZ Royal Netherlands Institute for Sea
Research
P.O. Box 59
1790 AB Den Burg
telephone: (+31) (0)222-369448/
telefax: (+31) (0)222-319674
e-mail address: furu.mienis@nioz.nl

**8. Geographical area in which the ship will operate:
(with reference in latitude and longitude)**

- 1) 51.18-51.50°N/11.41-11.87°W (Belgica Mounds)
- 2) 55.15-55.45°N/15.15-16.30°W (Logachev mounds)
- 3) 47-49°N/9.5-11.5°W (Whittard Canyon Complex)

9. Brief description of purpose of cruise:

The planned cruise serves a project funded by the Dutch national Science Foundation (NWO). The focus of this project is to study the physical drivers of hotspot ecosystems such cold-water coral reefs. Work consists of in-situ observations by means of autonomous benthic landers and seabed and water column sampling.

10. Names and dates of intended ports of call:

Texel (Netherlands) departure 1 October 2012
Vigo (Spain) return 25 October 2012

11. Any special logistic requirements at ports of call:

None

Part B: DETAIL

1. Name of research ship: RV Pelagia

2. Cruise dates: 1/10/2012 - 24/10/2012

3. Purpose of research and general operational methods:

The purpose of the planned cruise is to collect samples for a project funded by the Dutch national Science Foundation (NWO). The focus of this project is to study the physical drivers of hotspot ecosystems such cold-water coral reefs. Work consists of in-situ observations by means of autonomous benthic landers and seabed and water column sampling.

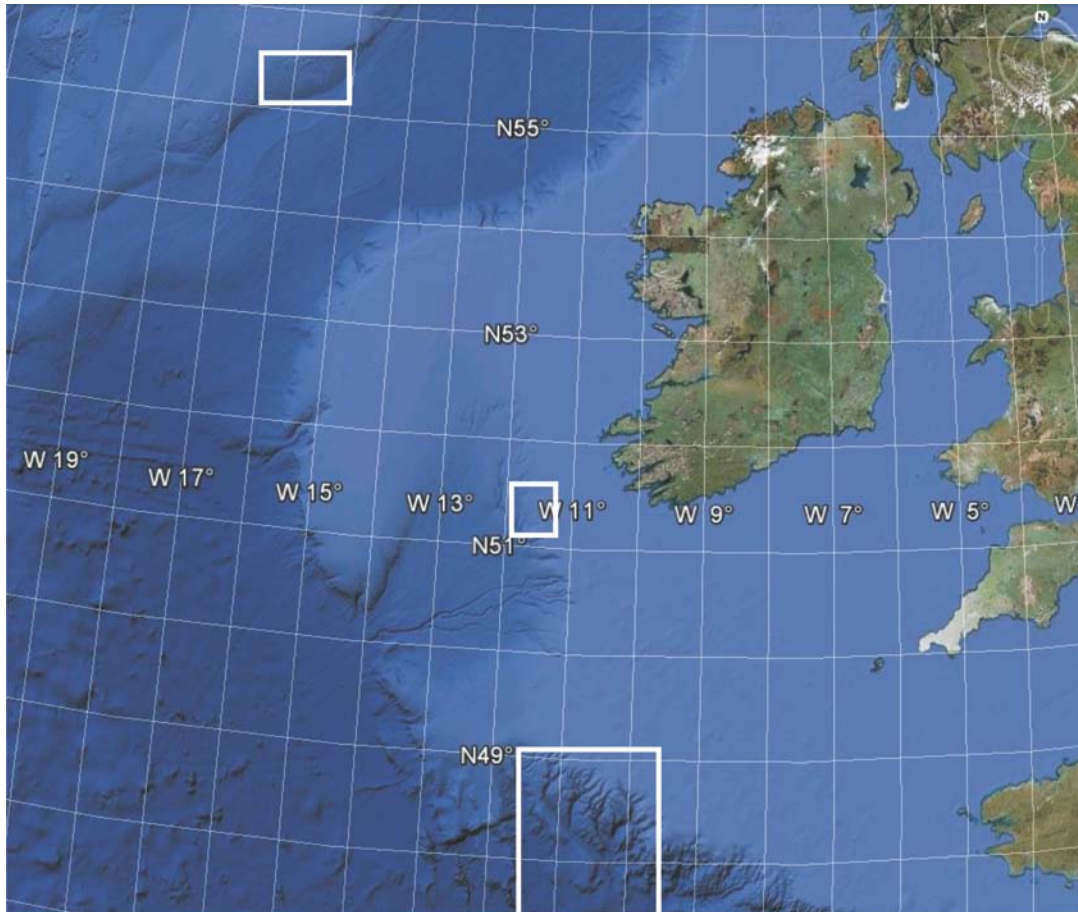
Within the project we intend to study relations between seafloor morphology, particle transport in the benthic boundary layer and the benthic fauna on cold-water coral reef systems in the Porcupine Seabight and on the Rockall Bank by means of a tethered video system, video-guided boxcore sampling, piston core sampling and benthic lander deployments. Particulate matter higher in the water column will be sampled by means of CTD casts. The following aspects will be studied on the video footage and core/dredge samples 1) density and size estimates of macro/epifauna, 2) stable isotopes of organism tissues to analyse food web structure. Data will be related to bottom topography and particle density and quality.

Furthermore, we intend to make estimates of fish abundance on and off coral mounds by means of 1) surveys with tethered video across mounds, and 2) a novel baited video lander. Additional short lander deployments for periods of 1 – 2 days will be done during the cruise. One lander will be deployed at the end of the cruise in the Logachev mound area (Rockall Bank) for the period of one year.

Two landers deployed in 2011 in the Belgica mound province and in the Whittard Canyon will be recovered.

4. Attach chart showing (on an appropriate scale) the geographical area of the intended work, positions of intended stations/hydrographic sections:

Exact positions of stations will depend on video surveys made during the cruise, but can be sent to the appropriate organisation 48 hours before hand. Research will be concentrated on the cold-water coral communities in the Logachev mound area (55.15-55.45°N/15.15-16.30°W). Landers deployed in 2011 will be recovered from the Belgica mound area (51.4519°N/11.7524°W) and the Whittard Canyon (48.10.515°N/10.35.010°W).



Map with the three intended research areas indicated

5a. Type of samples required:

Sediment samples
 Macrofauna and epifauna samples
 Water column samples
 Video footage
 Multibeam survey

5b. Methods by which samples will be obtained (including dredge/core/drill techniques):

CTD Rosette-sampler (water column sample), Stand-alone submersible Pump (water column sample), video-guided boxcorer (macrofauna, sediment samples), pistoncorer (sediment samples), triangular dredge (epifauna), NIOZ benthic landers (video footage).

6. Details of moored equipment:

One BOBO autonomous bottom lander, which was deployed in October 2011 in the Whittard canyon axis, will be recovered. The BOBO lander consists of a 3 x 3 x 4 m tripod frame containing flotation spheres, instrument package and two Benthos releases, anchored to the seabed with three 100-kg iron weights. Instruments will record bottom water current speed and direction, turbidity, temperature and salinity, and a sediment trap will collect sinking particulate matter. A 15-m drift line with float is attached to the top of the lander frame.

An autonomous benthic lander (about 3 x 3 x 3 m), deployed in October 2011 in the Belgica mound province will be recovered. The lander records currents, near-bottom particle load and temperature. It carries a HD video system with fluid attractant to perform experiments on the approach time of fishes and invertebrate scavengers. During the cruise short deployments of 2-7 days with both lander types will be done on and around coral mounds in the Logachev mound area. A BOBO lander will be deployed at the end of the cruise for a long term (1 year) deployment. A mooring with two current meters and a thermistor string will be deployed for the duration of the cruise. The thermistor string will record high resolution temperature variability.

7. Explosives:

No explosives.

8. Detail and reference of:

a. Any relevant previous/future cruises:

The scientific party has participated in several cruises with RV Pelagia to the research area e.g., the MOUNDFORCE 2004 cruise (chief scientist H. de Haas, NIOZ), the HERMES-BIOSYS cruise to Rockall and Porcupine Banks in 2005 (chief-scientists F. van Duyl & G. Duineveld, NIOZ), HERMES cruises in 2007 to Whittard Canyon (chief scientist H. de Stigter, NIOZ), to the Belgica Mounds/Whittard Canyon in 2008 (chief scientist M. Lavaleye, NIOZ), to the Belgica Mounds/Whittard Canyon in 2009 (chief scientist G. Duineveld), in 2010 to the Belgica Mounds/Whittard Canyon (chief scientist M. Lavaleye, NIOZ), in 2011 to the Belgica Mounds/Whittard Canyon (chief scientist M. Lavaleye, NIOZ).

b. Any previous published research data relating to the proposed cruise:

(Attach separate sheet if necessary)

- Duineveld, G.C.A., M.S.S. Lavaleye, E.M. Berghuis, P.A.W.J. de Wilde (2001) Activity and composition of the benthic fauna in the Whittard canyon and the adjacent continental slope (Goban Spur, NE Atlantic). *Oceanologica Acta* 24: 69-83
- Duyl, F.C. van, G.C.A. Duineveld and others (2005) Biodiversity, ecosystem functioning and food web complexity of deep water coral reefs in the NE Atlantic (Rockall Bank and Porcupine Bank). – BIOSYS/HERMES 2005, Cruise Report RV Pelagia cruise 64PE238, NIOZ, Texel. pp. 1-31
- Duineveld G.C.A. and others (2006) Biodiversity, ecosystem functioning and food web complexity of cold water coral reefs in the NE Atlantic (Rockall Bank). - HERMES 2006, Cruise Report RV Pelagia Cruise 64PE249, NIOZ, Texel, pp. 1-55.
- Duineveld, G.C.A., Lavaleye, M.S.S., Bergman, M.J.N., de Stigter, H. and Mienis, F., 2007. Trophic structure of a cold-water coral mound community (Rockall Bank, NE Atlantic) in relation to the near-bottom particle supply and current regime. *Bulletin of Marine Science*, 81: 449-467.
- Mienis, F., de Stigter, H.C., White, M., Duineveld, G., de Haas, H. and van Weering, T.C.E., 2007. Hydrodynamic controls on cold-water coral growth and carbonate-mound development at the SW and SE Rockall Trough Margin, NE Atlantic Ocean. *Deep Sea Research Part I: Oceanographic*
- De Stigter H. and others (2008) Dispersal of anthropogenic lead in submarine canyons. Cruise report RV Pelagia cruise 64PE269, NIOZ, Texel, pp. 1-65.
- Duineveld G.C.A. and others (2009). Cruise report CoralFish/HERMIONE with the RV Pelagia to the Belgica Mounds and the Whittard Canyon. NIOZ, Texel. pp. 1-46.

- Mienis, F., De Stigter, H.C., De Haas, H. and Van Weering, T.C.E., 2009. Near-bed particle deposition and resuspension in a cold-water coral mound area at the Southwest Rockall Trough margin, NE Atlantic. Deep Sea Research Part I: Oceanographic Research Papers, 56: 1026-1038.
- Lavaleye M.S.S. and others (2010). Cruise report CoralFish/HERMIONE with the RV Pelagia 64Pe324 to the Belgica Mounds and the Whittard Canyon. NIOZ, Texel. pp. 1-49.
- Lavaleye, M.S.S. and shipboard scientific crew, 2011. CoralFISH-HERMIONE cruise report of Cruise 64PE345, Texel-Vigo, 28 Sept – 14 Oct 2011 to Belgica Mound Province (CoralFISH & HERMIONE) and Whittard Canyon (HERMIONE). pp. 46

9. Names and addresses of scientists of the coastal state in whose waters the proposed cruise takes place with whom previous contact has been made:

- Dr. A. Grehan, Martin Ryan Marine Science Institute, National University of Ireland, Galway, University Road, Galway, Ireland (coordinator CoralFISH project)
- Prof. Dr. Phil Weaver, National Oceanography Center, University of Southampton Waterfront Campus, European Way, Southampton SO14 3ZH United Kingdom and Dr. Andrew Davies, School of Ocean Sciences, Bangor University, Menai Bridge, LL59 5AB, Wales, United Kingdom

10. State:

a. Whether visits to the ship in port by scientist of the coastal state concerned will be acceptable:

Yes

b. Whether it will be acceptable to carry on board an observer from the coastal state for any part of the cruise and dates and ports of embarkation/-disembarkation:

Yes. Dr. Andrew Davies, Bangor University will participate in this research cruise.

c. When research data from intended cruise is likely to be made available to the coastal state and if so, by what means:

The data will be made available through scientific publications. Cruise Reports are available on request and will be distributed among appropriate foreign agencies.

COASTAL STATE: UK

SCIENTIFIC EQUIPMENT

11. Complete the following table - include a separate copy for each coastal state (indicate "Yes" or "No" if applicable)

Marine scientific equipment used	water depth (m)	fisheries research	distance of research to coast in nautical miles			
				< 3	3-12	12-50
Multibeam	200-4500	no	no	no	no	yes
CTD	200-4500	no	no	no	no	yes
ALBEX lander	200-4500	no	no	no	no	yes
Boxcorer	200-4500	no	no	no	no	yes
Pistoncorer	200-4500	no	no	no	no	yes
Multicorer	200-4500	no	no	no	no	yes
Dredge	500-4500	no	no	no	no	Yes
Agassiz trawl	>1000	no	no	no	no	Yes